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NASA Software of the Year Award Evaluation Committee
National Aeronautics and Space Administration
Ames Research Center
Moffett Field, CA 94035-1000

This letter is in support of the nomination of FACET software for the *2006 NASA Software of the Year Award*.

Optimal Synthesis Inc has been using FACET software for conducting research on future air traffic management systems since 2000. We have used it in a variety of research projects such as the development of a new air traffic flow modeling and control methodology, air traffic conflict resolution algorithm development, stability analysis of distributed air traffic management systems and dynamic analysis of the interaction between air traffic and space vehicle traffic. Several of these research efforts have produced archival journal publications. A paper describing the new FACET-based air traffic flow modeling technique won the best paper award at the *2002 AIAA Guidance, Navigation and Control Conference*. None of these research activities would have been feasible without the availability of the FACET software.

FACET is a truly unique software package in the air traffic management discipline in that it is specifically designed for scientific and technical research. No other software package, commercial or otherwise, provides this functionality. FACET provides fundamental and previously unavailable capabilities to the researchers to model the air traffic environment and to conduct investigations. In order to further improve user access to FACET, Optimal Synthesis is currently building a fully scriptable interface between FACET and the well-known MATLAB[®] and JYTHON[®] software packages. Since MATLAB software has over 100,000 installations worldwide, the scriptable version of the FACET software is expected to dramatically increase its research user-base in the coming years. In our opinion, the FACET package will continue to play a central role in helping to formulate new air traffic management concepts over the next two decades.

FACET architecture exploits the Java software technology, together with the popular C programming language to achieve platform-independent performance. We have used FACET package on Windows 98/NT/2000/XP and the Linux operating systems. The marriage of Java and C creates highly efficient and scalable software architecture, which is unlikely to require any major structural changes over the next decade. We would rate the software at a Technology Readiness Level of 9.

FACET code is well documented, and the User's Manual is provided in HTML form. Both of these are adequate for use by software professionals. The software appears to be designed for extensibility. Overall, we rate the software as *Outstanding* in terms of research value, usability and understandability. Based on the unique capabilities it offers to researchers and the long-term value of the ATM technologies it will help create, we strongly recommend FACET for the 2006 Software of the Year award.

You may reach the undersigned at (650) 213-8585, Ext. 201 or by e-mail at menon@optisyn.com if you have any questions or if you need any additional information.

Sincerely

Dr. P. K. Menon
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